

Work Order ID 65511

Wednesday, January 19, 2011 11:09:13 AM

Page 1

Item ID: D2580-1

Accept

Revision ID:

Item Name: 205 Skidtube bent detail

Start Date: 1/20/2011 Start Qty: 3.00

Required Date: 2/3/2011 Req'd Qty: 3.00

Reference:

Approvals:

Process Plan: MFC

Date: 11-01-19

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D2580

RevD DEO-D1

100

0.00

Skidtubes

Skidtubes

Memo

0.00

1- Inspect mat'l D2500-I-190 for damage.

2-Drill pilot holes using drill jig DT 8149 (Do not use cutting fluid)

3-Open holes to 0.500" as per Dwg D2580 without cutting fluid

4-Deburr holes per QSI002 section 4.2.3 and blow out all chips from inside of tube

5- Chemical Conversion Coat as per QSI 005 4.1

6-Bond web in place per QSI 015.

□□

A/R Sikaflex-291 batch: 11/16/04 □□□

Sikaflex expire date: 09/20/11

Start time and date: 11/02/23 bond for 12hrs

4:00

BE 11/02/23

BB 11/02/23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 65511

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Page 2

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Reference:

Cust Item ID:

Customer:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

101



QC

Quality Control

QC6- Inspect dimensions to drawing

0.00

Memo

0.00

11-2-23

130



QC

Quality Control

QC3- Inspect Part Finish

0.00

Memo

0.00

11-2-23

140



Packaging

Packaging

Identify as per dwg & Stock Location: 4/6

0.00

Memo

0.00

11-2-23

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Work Order ID 65511

Wednesday, January 19, 2011 11:09:13 AM



Page 3

Item ID: D2580-1

Accept



Setup Start



Revision ID:

Stop



Item Name: 205 Skidtube bent detail

Start Date: 1/20/2011 Start Qty: 3.00



Cust Item ID:

Required Date: 2/3/2011 Req'd Qty: 3.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

150

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

11/02/24

MF

11-02-24

W/O:		WORK ORDER CHANGES					
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Wednesday, January 19, 2011 11:09:10 AM

[illegible]

Required Date: 2/3/2011

Required Qty: 3.00

Comments: IPP B01.11.08 Revised Step 9, 10, 12, and 13 SM IPP Rev:C
10.12.01 as per DEO D1 DD verf:ec

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2500-1-190 		Manufactured	No			100	Each	82.0000	1	3			
Ext'n -1' Beam Tube 4"													
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				LG				82					
					52319			11					
					58427			71		<u>3</u>			
D2596 		Manufactured	No			100	Each	12.0000	1	3			
Web, 205 Skidtube													
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				LG				10					
					64875			10					
				LG46				2					
					64678			2					

W/O:		WORK ORDER CHANGES					
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DART**RELEASED**
07-06-28 #**DEO ATTACHED**

DESIGN #	DRAWN BY R4	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D2580	REV. D SHEET 1 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	
D	07.02.27	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/9183	

QTY -041	QTY -045	Part Number	Description
X		D2580-041	SKIDTUBE ASSEMBLY
	X	D2580-045	SKIDTUBE ASSEMBLY
1	1	D2500-1-190	EXTRUSION
1	1	D2576-3	STEP
20	24	D2579	CROSS BOLT SPACER
16	16	D2594-1	PLUG
16	16	D2594-3	O-RING
1	1	D2596	205 WEB
1	1	D2855	AFT CAP
1	1	D3564-5	WEARSHOE
1	1	D3564-9	WEARSHOE
1	1	D3564-11	WEARSHOE
1	1	D3564-13	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1	1	D3566-13	GASKET
50	50	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
50	50	AN3C4A	BOLT
2	2	AN3-5A	BOLT
50	50	AN960C10L	WASHER
2	2	AN960JD10L	WASHER

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) ALL DIMENSIONS ARE IN INCHES
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/-291.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:
SEE NOTES ON
PAGE 2 FOR D2580-041 AND
PAGE 3 FOR D2580-045
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

#65511

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

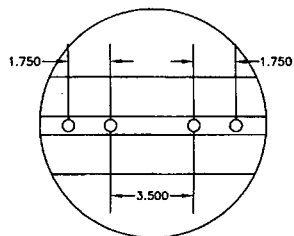
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

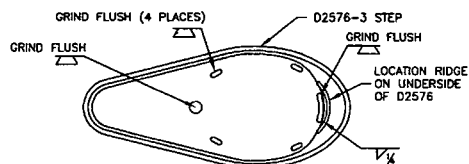
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NOTE: Date & initial all entries

DETAIL A
SCALE 5:24



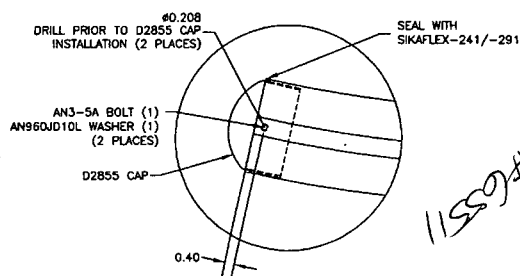
DETAIL B
SCALE 5:24



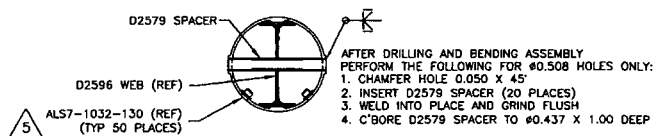
RELEASED
87-06-28

DEO ATTACHED

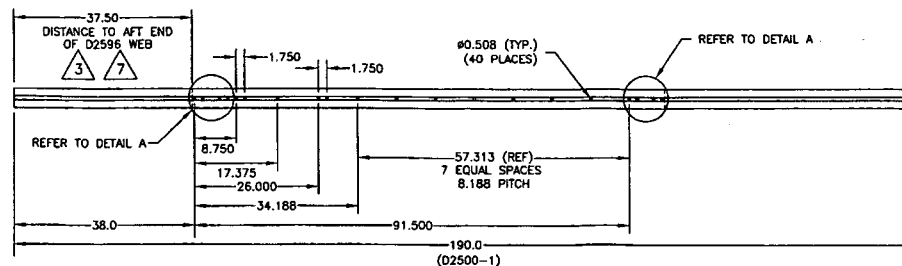
DETAIL C
SCALE 5:24



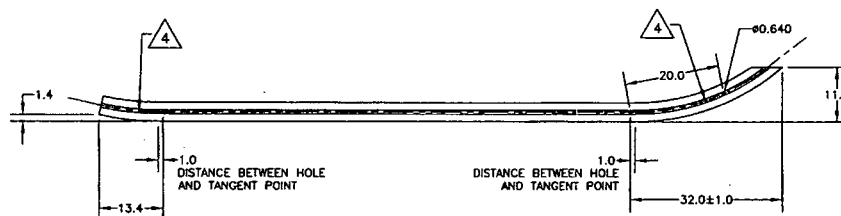
SECTION D-D
SCALE 5:24



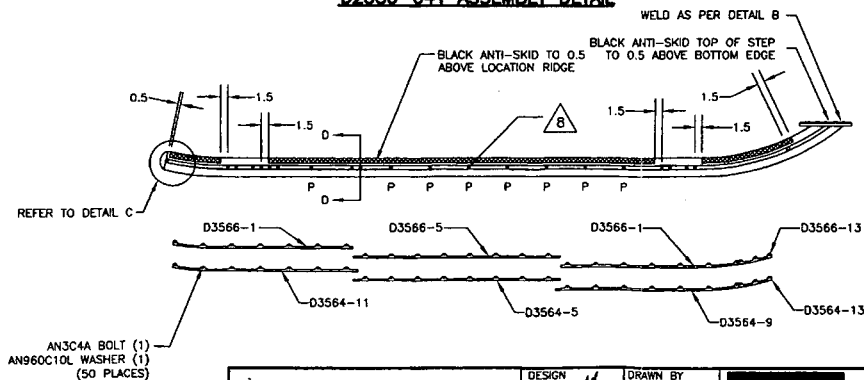
D2580-1 DRILLING DETAIL



D2580-1 BENDING AND CUTTING DETAIL



D2580-041 ASSEMBLY DETAIL



D2580-041 NOTES

- i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
POWDER COAT ASSEMBLY GLOSS WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

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DESIGN	DRAWN BY	DART	DART AEROSPACE LTD.
CHECKED	APPROVED	DRAWING NO.	HARRISBURG, ONTARIO, CANADA
DATE	07.02.27	D2580	REV. D
		TITLE	SHEET 2 OF 3
		205 SKIDTUBE ASSEMBLY	SCALE
			1:24

W/O:		WORK ORDER CHANGES					
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RELEASED
67-6-28

Diagram illustrating the grinding locations on a propeller cross-section:

- GRIND FLUSH (4 PLACES)
- GRIND FLUSH
- D2576-3 STEP
- GRIND FLUSH
- LOCATION RIDGE ON UNDERSIDE OF D2576
- $\frac{1}{8}$

DEO ATTACHED

Technical drawing of a circular component with the following annotations and dimensions:

- DRILL PRIOR TO D2855 CAP INSTALLATION (2 PLACES)**: Points to two small circles on the left side of the component.
- #0.208**: Dimension for the diameter of the two small circles.
- AN3-5A BOLT (1)**: Points to a bolt on the right side of the component.
- AN960UD10L WASHER (1)**: Points to a washer on the right side of the component.
- (2 PLACES)**: Points to two small circles on the right side of the component.
- D2855 CAP**: Points to a cap on the right side of the component.
- SEAL WITH SIKAFLEX-241/-291**: Points to a seal on the right side of the component.
- SEE NOTE ii)**: Points to a note on the right side of the component.
- 0.40**: Dimension for the distance between the two small circles on the right side.

D2579 SPACER
 D2596 WEB (REF)
 AL57-1032-130 (REF)
 (TYP 50 PLACES)

AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR $\varnothing 0.508$ HOLES ONLY:
 1. CHAMFER HOLE $0.050 \times 45^\circ$
 2. INSERT D2579 SPACER (20 PLACES)
 3. WELD INTO PLACE AND GRIND FLUSH
 4. C'BORE D2579 SPACER TO $\varnothing 0.437 \times 1.00$ DEEP

i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
POWDER COAT ENTIRE ASSEMBLY GREEN (REF. 4.3.5.8) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

ii) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE
WITH THE SPACER AT THIS LOCATION

[illegible]

Figure 1: Elevation view of the bridge deck showing the location of the hole. The diagram includes dimensions for the hole's position relative to the deck edge and the tangent point of the hole. Key dimensions include: 5.085 (hole radius), 5.338 (REF) (distance from hole center to deck edge), 51.340 (distance from hole center to tangent point), 39.580 (distance from hole center to hole center), 3.630 (REF) (distance from hole center to hole center), 5.915 (distance from hole center to hole center), 20.0 (distance from hole center to hole center), 1.4 (hole radius), 1.0 (distance between hole and tangent point), 13.4 (distance between hole and tangent point), 32.0 ± 1.0 (distance between hole and tangent point), and 32.0 ± 1.0 (distance between hole and tangent point). The hole is labeled with a diameter of 0.640 and a hole count of 8 PLACES.

WELD AS PER DETAIL F

BLACK ANTI-SKID TO 0.5 ABOVE LOCATION RIDGE

BLACK ANTI-SKID TOP OF STEP TO 0.5 ABOVE BOTTOM EDGE

NO C'BORE NO PLUG

REFER TO DETAIL G

H

P P P P P P P P

B

D3566-1

D3566-5

D3566-1

D3566-13

D3564-11

D3564-5

D3564-9

D3564-13

AN3C4A BOLT (1)

AN960C10L WASHER (1)

(SQ. PLACES)

DESIGN	DRAWN BY

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DRAWN BY	RH
APPROVED	HK

DRAWING NO	D2580
TITLE	205 SK

REV. 1
SHEET 3 OF 3
SCALE
1:24

REV. 1
3 OF 3
SCALE
1:24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

DRAWING NO. D2580	TITLE 205 SKIDTUBE ASSEMBLY	REV. D	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D2580-D-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>UP</i>	CHECKED <i>L</i>	MFG. APPR. <i>B</i>	APPROVED <i>MP</i>		DE APPR. <i>#</i>		
DATE 10.09.22	DATE 10.11.04	DATE 10.11.04	DATE 10/11/04		DATE 10.11.04		

PURPOSE:

CHANGE ALL WELDED CROSSBOLT SPACERS TO SWAGED SPACERS

CHANGE:

PARTS LIST IS AMENDED AS FOLLOWS:

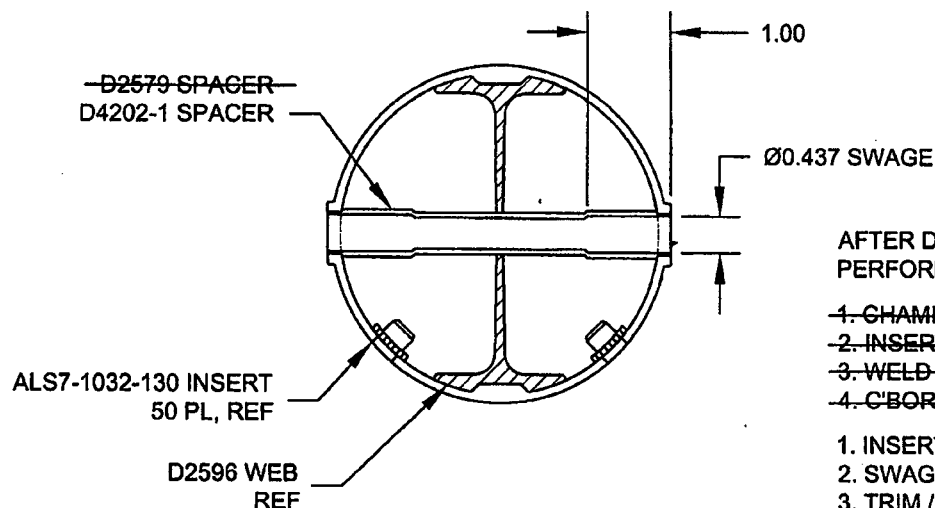
WAS

QTY	QTY	PART NUMBER	DESCRIPTION
-041	-045		
20	24	D2579	CROSS BOLT SPACER

IS

20	24	D4202-1	SPACER
----	----	---------	--------

SECTION D-D & SECTION H-H ARE AMENDED AS FOLLOWS:



SECTION D-D
NOT TO SCALE

SECTION H-H
NOT TO SCALE

RELEASED
2010-11-18
MP

AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

- ~~1. CHAMFER HOLE 0.050 X 45°~~
- ~~2. INSERT D2579 SPACER (20 PLACES)~~
- ~~3. WELD INTO PLACE AND GRIND FLUSH~~
- ~~4. C-BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP~~

1. INSERT D4202-1 SPACER, 20 PL (-041) OR 24 PL (-045)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM / GRIND FLUSH PER QSI 002

W/O:		WORK ORDER CHANGES					
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